REMARKS

This application contains claims 66-118. Claims 67, 84, 87-90, 93, 111 and 114-117 have been canceled without prejudice. Claims 66, 69, 76, 79, 81-83, 85, 86, 92, 106, 108, 109, 112, 113 and 118 have been amended. No new matter has been introduced. Reconsideration is respectfully requested.

Applicant thanks Examiner Hirl for the courtesy of a personal interview with Applicant's representative, Daniel Kligler (Reg. No. 41,120) held in the USPTO on September 27, 2005, followed by a number of telephone interviews to discuss possible amendments to the claims. At the personal interview, Applicant's representative explained the distinction of the claimed invention over the cited art, but agreement was not reached regarding the patentability of the pending claims. Subsequently, Applicant's representative presented a draft amendment to method claims 66-91. In a telephone interview held November 21, 2005, the Examiner indicated that these claims would distinguish the present invention over the cited art.

Claims 66-118 were rejected under 35 U.S.C. 102(b) over Mackworth ("Consistency in Networks of Relations"). Applicant has amended the claims, as agreed in the telephone interview of November 21, in order to distinguish the present invention over the cited art. Claims 66, 92 and 118 are independent claims, while the remaining claims depend from either claim 66 or claim 92.

Claim 66, as amended, recites a method for controlling operation of a target system, based on building a network of hyper-arcs representing a set of constraints among variables that are characteristic of inputs to the target system (as recited in original claim 12 of the present patent application). The constraints include one or more relations defined as a combination of operators that are applied to the variables, including at least one operator selected from a group of arithmetic and bitwise operators. The constraints are expressed in a generic relational language, as described, for example, on page 8, lines 2-4, of the specification.

These constraints are automatically parsed so as to build a network that comprises one or more hyper-arcs, each corresponding to a respective relation. Each hyper-arc comprises a constraint sub-network, which is processed so as to find sets of values of the variables within the input domains of the variables that satisfy the respective relation (as described on page 8 and shown in Fig. 3, for example). The input domains of the variables in the network are reduced, using these sets of values, in order to determine output domains consistent with the relations. These output domains are applied in determining values of the inputs to be made to the target system.

Mackworth describes algorithms for solving a constraint satisfaction problem (CSP) based on maintaining arc consistency. These algorithms include the Boolean procedure "REVISE," listed by Mackworth on page 104, lines 8-18. Mackworth's method requires that constraints be given as a logical relation, represented as an explicit set of valid combinations of variable values, or revealed through a predicate. As discussed in the interview, Mackworth neither teaches nor suggests the use of a generic relational language as recited in amended claim 66. Thus, Mackworth also cannot be taken to suggest automatically parsing such a language, or processing sub-networks resulting from such parsing in the manner recited in this claim. Therefore, claim 66 as amended is believed to be patentable over Mackworth.

Independent claims 92 and 118 respectively recite apparatus and a computer software product for controlling operation of a target system. These claims are based on principles similar to the method of claim 66 and have been amended in like manner. Therefore, for the reasons explained above, claims 92 and 118 are also believed to be patentable.

Claims 68-83, 85, 86 and 91 depend from claim 66, while claims 94-110, 112 and 113 depend from claim 92. Some of these claims have been amended for proper antecedent dependence from the amended independent claims. In view of the patentability of the independent claims, these dependent claims are also believed to be patentable.

Applicant believes the amendments and remarks presented hereinabove to be fully responsive to all of the objections and grounds of rejection raised by the Examiner. In view of these amendments and remarks, Applicant respectfully submits that all of the claims in the present application are in order for allowance. Notice to this effect is hereby requested.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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